Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A method for growing a mono-crystalline emitter for a bipolar transistor, comprising:

providing a trench formed on a silicon substrate having opposed silicon oxide side walls;

selectively growing a highly doped first mono-crystalline layer on the silicon substrate in the trench;

forming an amorphous or polysilicon layer over the silicon oxide side walls; and

forming a second mono-crystalline layer over the first mono-crystalline layer;

wherein the amorphous or polysilicon layer and the second mono-crystalline layer are formed by non-selectively growing a second silicon layer over the trench.

2. (previously presented) The method of claim 1, wherein the step of selectively growing a highly doped first mono-crystalline layer is accomplished using selective epitaxial growth.

3. (original) The method of claim 2, wherein the selective epitaxial growth using a precursor selected from the group consisting of: SiH_2Cl_2, SiH_4, $SiCl_4$, $SiCl_3$, $Si2H_6$, Si_3H_8, GeH_4, and SiH_3CH_3.

4. (previously presented) The method of claim 1, wherein the step of non-selectively growing the second silicon layer is accomplished using differential epitaxial growth.

5. (previously presented) The method of claim 1, wherein the first mono-crystalline layer is substantially grown only on an active area on the silicon substrate.

6. (original) The method of claim 1, comprising the further step of performing a

salicidation process using a silicide selected from the group consisting of: titanium, cobalt and nickel.

7. (currently amended) The method of claim 1, wherein the ~~first~~ mono-crystalline emitter is n-type doped with an element selected from the group consisting of: phosphorous and arsenic.

8. (previously presented) A method for forming a highly n-type doped layer in a semiconductor wafer, comprising:

providing a first active region comprised of a silicon substrate;

providing a second region comprised of silicon oxide;

selectively growing a highly doped first mono-crystalline layer on the silicon substrate;

forming an amorphous or polysilicon layer over the silicon oxide; and

forming a second mono-crystalline layer over the highly doped mono-crystalline layer;

wherein the amorphous or polysilicon layer and the second mono-crystalline layer are formed by non-selectively growing a second silicon layer over the first active region and the second region.

9. (previously presented) The method of claim 8, wherein the step of selectively growing a highly doped first mono-crystalline layer is accomplished using selective epitaxial growth.

10. (original) The method of claim 8, wherein the selective epitaxial growth uses a precursor selected from the group consisting of: SiH_2Cl_2 and SiH_4, $SiCl_4$, $SiCl_3$, $Si2H_6$, Si_3H_8, GeH_4, and SiH_3CH_3.

11. (original) The method of claim 8, wherein the step of non-selectively growing the second silicon layer is accomplished using differential epitaxial growth.

12. (previously presented) The method of claim 8, wherein the first mono-crystalline layer is substantially grown only on the active region.

13. (original) The method of claim 8, comprising the further step of performing a salicidation process using a silicide selected from the group consisting of: titanium, cobalt and nickel.

14. (previously presented) The method of claim 8, wherein the highly n-type doped layer is doped with an element selected from the group consisting of: phosphorous and arsenic.

15. (previously presented) A method for growing a mono-crystalline emitter for a bipolar transistor, comprising:

providing a trench formed on a substrate having opposed silicon oxide side walls;

growing a highly doped layer on the substrate in the trench using selective epitaxial growth;

forming an amorphous or polysilicon layer over the silicon oxide side walls; and

forming a mono-crystalline layer over the highly doped layer;

wherein the amorphous or polysilicon layer and the second mono-crystalline layer are formed by growing a second layer over the trench using differential epitaxial growth.

16. (original) The method of claim 15, wherein the selective epitaxial growth using a precursor selected from the group consisting of: SiH_2Cl_2, SiH_4, $SiCl_4$, $SiCl_3$, $Si2H_6$, Si_3H_8, GeH_4, and SiH_3CH_3.

17. (original) The method of claim 15, wherein the highly doped layer comprises a mono-crystalline layer that is substantially grown only on an active area on the substrate.

18. (original) The method of claim 15, comprising the further step of performing a salicidation process using a silicide selected from the group consisting of: titanium, cobalt and nickel.

19. (previously presented) The method of claim 15, wherein the mono-crystalline emitter is n-type doped with an element selected from the group consisting of: phosphorous and arsenic.

20. (previously presented) The method of claim 15, wherein the mono-crystalline emitter is p-type doped using boron.